

EFFECT OF CROSS-POLLINATION ON CROP COMPONENTS AND CHEMICAL CONTENTS OF CANOLA (*Brassica campestris* L. AND *Brassica napus* L.) UNDER GIZA GOVERNORATE ENVIRONMENTAL CONDITIONS.

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ABSTRACT

This work was carried out in the apiary of Experimental Station, Faculty of Agriculture, Cairo University, during two successive seasons (06/07 & 07/08), to evaluate the effect of open pollination on the seed yield of canola (*Brassica campestris* & *Brassica napus*). Also, the Germination Speed Index (GSI), Germination Percentage (GP), and chemical composition of seeds that produced from open and caged plots were determined.

The obtained data showed that the open pollination resulted in increasing the number of pods/plant; weight of seeds/plant; mean yield/feddans, and seed index (weight of 1000 seeds) than those produced from caged treatment. Also, the presence of pollinators on canola increased the germinability of resulting seeds from 74.00% to 96.00% and from 88.00% to 98.00% for both species, respectively. The open pollination induced an alternation of chemical composition of seeds and increased the total lipids; crude protein, and carbohydrates than seeds produced from caged treatments.

INTRODUCTION

The rapeseed (canola) is one of the most important oilseed crops in the world where the seed production has reached to 40 million tones during the year of 2000 and ranked as the second largest volume oilseed traded following soybeans. However, until now it was cultivated in small areas (about 2000 feddans and produced 4 thousands tones) in Egypt (Taha, 2007). As a (Turnip rape) *Brassica campestris* L., and (Swede rape) *Brassica napus* L. for oilseed.

These crops are self - fertile and can give good yield without insect pollination, but in presence of pollinators, especially honeybees, it produced greater seed yield than without insect pollinators (Friese and Stark, 1983; Williams, 1985). Also a remarkable improvement on the qualities of seeds was observed with the cross - pollination (Sabbahi, *et al.*, 2005a). Many authors reported that rapeseed plots caged with bees produced greater seed yields than plots caged without bees (Fujita, 1939 , Jenkinson, *et al.*, 1953 , Barbier, 1978) ; They added that when bees are present , plants produce fewer flowers but set a greater proportion of them , show earlier petal fall ; have more seeds per pod and that seeds are more even in size and more viable (Jenkinson, *et al.*, 1953 ; Meyerhoff, 1958 ; Radchenko, 1964 ; Barbier, 1978 ; Williams, 1984) .

The presence of pollinators on canola flowers increases the germination of resulting seeds from 83 % to 96 % (Keven and Eisikawitch, 1990). Also (Karise *et al.*, 2004) found that the insect pollinators make positive effects on